

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
| NATURE OF CONVEYANCE: | ASSIGNMENT |
| CONVEYING PARTY DATA | |
| Name | Execution Date |
| HYUN-SEUNG YOO | 05/16/2014 |
| EUN-SEOK CHOI | 05/16/2014 |
| SE-JUN KIM | 05/16/2014 |
| RECEIVING PARTY DATA | |
| Name: | SK HYNIX INC. |
| Street Address: | 2091, GYEONGCHUNG-DAERO, BUBAL-EUB, ICHEON-SI |
| City: | GYEONGGI-DO |
| State/Country: | REPUBLIC OF KOREA |
| PROPERTY NUMBERS Total: 1 | |
| Property Type | Number |
| Application Number: | 14281261 |
| CORRESPONDENCE DATA | |
| Fax Number: | (571)327-5452 |
| <i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i> | |
| Phone: | 571-327-5450 |
| Email: | ipntlaw@ipntlaw.com |
| Correspondent Name: | IP & T GROUP LLP |
| Address Line 1: | 8230 LEESBURG PIKE |
| Address Line 2: | SUITE 650 |
| Address Line 4: | VIENNA, VIRGINIA 22182 |
| ATTORNEY DOCKET NUMBER: | P10H0049D/US |
| NAME OF SUBMITTER: | MYUNG SOO KIM |
| SIGNATURE: | /Myung Soo KIM/ |
| DATE SIGNED: | 05/19/2014 |
| This document serves as an Oath/Declaration (37 CFR 1.63). | |
| Total Attachments: 3 | |
| source=IVX000119568_P10H0049DUS_ASSIGNMENT&DECLARATION#page1.tif | |
| source=IVX000119568_P10H0049DUS_ASSIGNMENT&DECLARATION#page2.tif | |
| source=IVX000119568_P10H0049DUS_ASSIGNMENT&DECLARATION#page3.tif | |

Attorney Docket No.: _____

**ASSIGNMENT OF AND DECLARATION FOR APPLICATION
FOR UNITED STATES LETTERS PATENT**

WHEREAS YOO, Hyun-Seung, hereinafter referred to collectively as the assignor and inventor, has invented a certain improvement relating to 3D NON-VOLATILE MEMORY DEVICE AND METHOD FOR OPERATING AND FABRICATING THE SAME

☒ said application being attached hereto;
☐ said application having been filed in the United States Patent and Trademark Office on _____, as Application Serial No. _____, and was amended on _____ (if applicable);
☐ the specification of which was filed under the Patent Cooperation Treaty on _____, Serial No. _____, the United States of America being designated.

AND WHEREAS SK hynix Inc., hereinafter referred to as the assignee or applicant, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

NOW THIS WITNESSETH, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the full and exclusive right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any and all divisions and continuations thereof, and the said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissues and prolongations thereof.

AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and assigns, in accordance herewith.

As an above-named inventor, I hereby declare that the above-identified application was made or authorized to be made by me, and that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

ASSIGNOR (INVENTOR):

Signature: Yoo Hyun Seung Date: May 16, 2014

Printed or Typed Name: YOO, Hyun-Seung

Attorney Docket No.: _____

**ASSIGNMENT OF AND DECLARATION FOR APPLICATION
FOR UNITED STATES LETTERS PATENT**

WHEREAS CHOI Eun-Seok, hereinafter referred to collectively as the assignor and inventor, has invented a certain improvement relating to 3D NON-VOLATILE MEMORY DEVICE AND METHOD FOR OPERATING AND FABRICATING THE SAME

☒ said application being attached hereto;
☐ said application having been filed in the United States Patent and Trademark Office on _____, as Application Serial No. _____, and was amended on _____ (if applicable);
☐ the specification of which was filed under the Patent Cooperation Treaty on _____, Serial No. _____, the United States of America being designated.

AND WHEREAS SK hynix Inc. hereinafter referred to as the assignee or applicant, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof:

NOW THIS WITNESSETH, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the full and exclusive right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any and all divisions and continuations thereof, and the said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

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AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and assigns, in accordance herewith.

As an above-named inventor, I hereby declare that the above-identified application was made or authorized to be made by me, and that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

ASSIGNOR (INVENTOR):

Signature: _____

*Choi Eun Seok*Date: May 16, 2014Printed or Typed Name: CHOI Eun-Seok

Page 1 of 1



Attorney Docket No.: _____

**ASSIGNMENT OF AND DECLARATION FOR APPLICATION
FOR UNITED STATES LETTERS PATENT**

WHEREAS KIM, Se-Jun, hereinafter
referred to collectively as the assignor and inventor, has invented a certain improvement relating to
3D NON-VOLATILE MEMORY DEVICE AND METHOD FOR OPERATING AND FABRICATING THE SAME

☒ said application being attached hereto;
☐ said application having been filed in the United States Patent and Trademark Office on _____,
as Application Serial No. _____, and was amended
on _____ (if applicable);
☐ the specification of which was filed under the Patent Cooperation Treaty on _____,
Serial No. _____, the United States of America being designated.

AND WHEREAS SK hynix Inc.
hereinafter referred to as the assignee or applicant, is desirous of acquiring the entire right, title and interest in and to said
application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents
which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

NOW THIS WITNESSETH, that for and in consideration of One Dollar (\$1.00), and other good and valuable
consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby
assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the full and exclusive right, title and
interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and
any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said
assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any
and all divisions and continuations thereof, and the said invention and any and all patents which may be granted therefor,
including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in
anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted,
including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said
assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and
enjoyed the same, if this assignment had not been made.

AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or
assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissues
and prolongations thereof.

AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on
said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and
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As an above-named inventor, I hereby declare that the above-identified application was made or authorized to be
made by me, and that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001
by fine or imprisonment of not more than five (5) years, or both.

ASSIGNOR (INVENTOR):

Signature: KIM, Se-Jun Date: May 16, 2014

Printed or Typed Name: KIM, Se-Jun

